CLearwater 9-8015
STATINTL

[redacted]

December 12, 1958

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[redacted]

PROPOSAL FOR A HIGH SPEED COMPARATOR FOR VERY LONG FRAMES OF 70 MM AND 140 MM FILM

Dear Sir:

The large desired X travel of 45 inches and relatively smaller Y travel of 5 1/2 inches lends itself to configuration such that the film is nearly stationary at all times and the microscope moves in both X and Y coordinates. Proper human engineering to allow comfortable operation would place the operator in a chair on rollers riding a track such that the eye was always comfortable at the microscope eyepiece and all controls within easy reach at all times. This makes power setting of the long X axis screw a necessity. The instrument we propose to furnish would have all the above features.

The base would be a rectangular box of the [redacted] type of cast iron ribbed where necessary to provide an accurate support for the screws, stages and microscope system. In the lower part of the base would be an array of cold cathode or fluorescent tubes to illuminate an area 5 1/2" by 45". This area would be blower cooled if on test, heat proved to be present in sufficient quantity to be detrimental to the accuracy of the instrument. STATINTL

At the front of the base would be a precision screw of 1 mm pitch, 10 mm lead, 10 multiple thread, driven by a reversible motor at speeds of approximately 30 mm per second. This would permit traverse of the entire span of 45" travel in about 39 seconds.

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STATINTL The drive motor for the X axis drive would be a torque motor as manufactured by [redacted] Originally developed by the [redacted] the motor has several properties advantageous to drive and setting of comparator screws. By actual use on a comparator screw we have been able to have slew speeds of up to 4 revolutions per second down to incremental advances of as little as 1/2000 of a revolution of the screw. The motor would be direct mounted on the end of the screw and have a separate power supply. Controls would move with the stage and would permit left or right slew speeds, left or right slow speeds and left or right jog or incremental drive.

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The Y axis screw would give a microscope travel of 5 1/2" in Y. With a 10 mm lead 1 mm pitch screw, traverse of 5 1/2" or 140 mm would require about 5 seconds. With such a short time, the Y axis screw would be manual drive instead of motor drive.

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A metal dial would be mounted at the end of each screw so graduated as to give a least count readout of .010 mm or 10 microns. These dials and associated scales to give a turn count would be merely for checking the digitizers mounted on the screws, [redacted] Magnetic Reading Head Type 15A will be mounted to digitize the motion of each screw and the two axis demodulator unit Type 20 A will also be furnished.

The microscope will be an internal focus, internal continuously variable power unit with all moving elements mounted in a hardened, ground and honed steel tube. Power would vary from 6X to 15X and a magazine for four reticles would be furnished. The microscope would be mounted at an angle to the stage for comfortable viewing by a seated operator. Optically, it would see the film vertically from above by means of a precision front surface mirror mounted at the end of the microscope tube.

Film spools would be mounted at the ends of the comparator with 70 mm and 140 mm spools of almost any size being easily mounted or interchanged. Unless otherwise specified, design would be for the diameter of a 200 foot spool. During measurement, the film is prevented from moving by the clamping motion of two glass pressure plates. During film advance the plates are separated by the action of four magnetic solenoids. During the advance the film would touch only the hard chrome plated and polished rollers at the end of the film stage. This film stage assembly can be rotated a small amount to bring fiducials parallel to the ways of the comparator.

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STATINTL For the comparator as specified above, with table and chair on rails and with metal dials on the screws, the cost would be [redacted]. For two each Magnetic Reading Head Type 15A and one each demodulator Type 20A an additional [redacted] installed. For special packing and packaging for shipment, [redacted] For delivery and setup by one of our engineers in the Washington area, an additional [redacted] Delivery would be 150 days after receipt of order. Terms 1/2 of 1% 10 days, net 30 days.

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If we can be of any further assistance or if you require additional information or clarification, please do not hesitate to inquire.

Very truly yours,

[redacted] STATINTL

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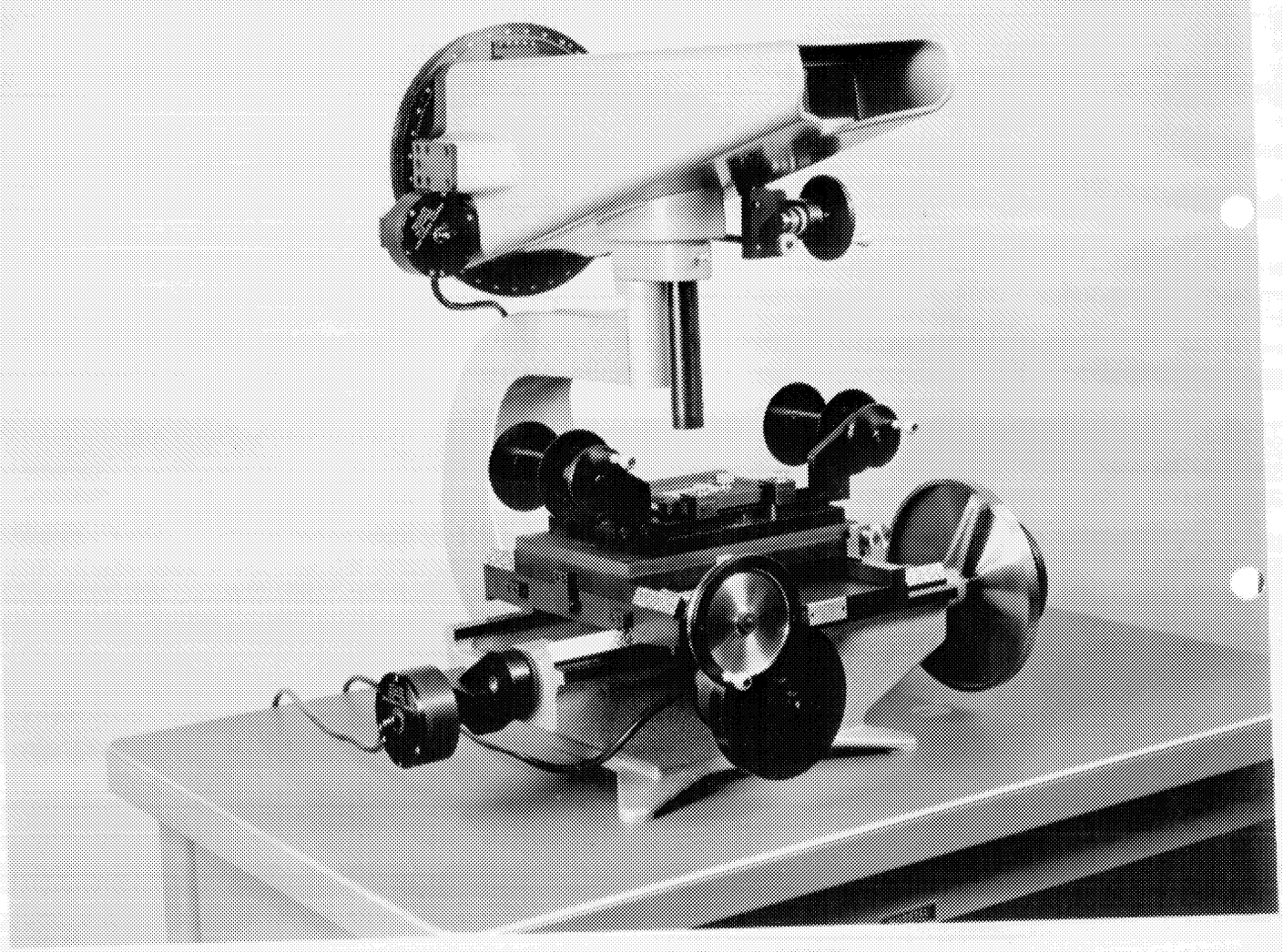
Model 329A



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